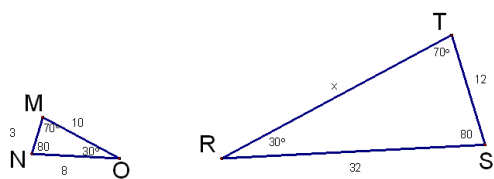
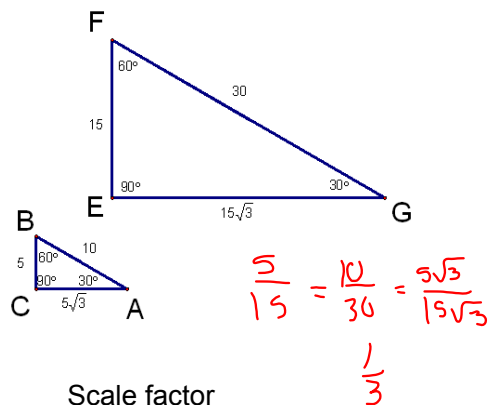


6-3 Use Similar ~ Polygons

Two polygons are ~, if

1. corresponding \angle s are \cong
2. corresponding sides are proportional



$\triangle MNO \sim \triangle TSR$

Scale Factor $\frac{1}{4}$

$$\frac{3}{12}$$

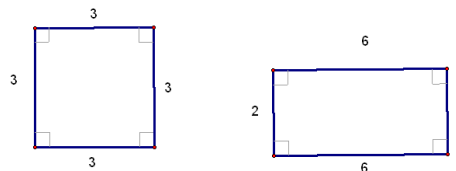
$$\frac{1}{4} = \frac{10}{x}$$

$$\frac{3}{12} = \frac{10}{x}$$

$$x = 40$$

Are the following figures similar?

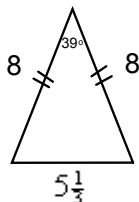
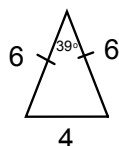
NO



angles \checkmark
sides

$$\frac{3}{2} \neq \frac{3}{6}$$

Are the following figures similar?

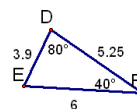
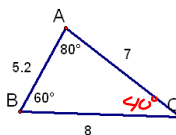


angles ✓
sides ✓
yes

$$\frac{6}{8} = \frac{4}{5\frac{1}{3}}$$

$$32 = 32 \checkmark$$

Are the following figures similar?



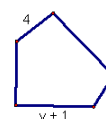
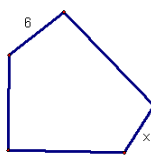
angles ✓
sides ✓
Perimeters?
 $P = 20.2$
 $p = 15.15$

$$\frac{5.2}{3.9} = \frac{7}{5.25} = \frac{8}{6}$$

$$\frac{1.\bar{3}}{1.\bar{3}} = \frac{1.\bar{3}}{1.\bar{3}}$$

Theorem 6.1--Perimeters of Similar Polygons--If 2 polygons are similar, then the ratio of their perimeters is equal to the scale factor.

The pentagons are similar.
Solve for x and y.



$$\frac{6}{4} = \frac{x}{3} \quad x = 4.5$$

$$\frac{6}{4} = \frac{8}{y+1} \quad y = 4\frac{1}{3}$$

The perimeter of the larger figure is 36 units.

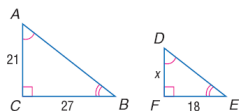
What is the perimeter of the smaller?

$$\frac{3}{2} = \frac{36}{p}$$

$$p = 24$$

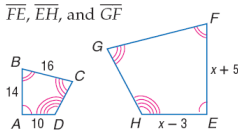
Each pair of polygons is similar. Write a similarity statement, and find x , the measure(s) of the indicated side(s), and the scale factor.

6. \overline{DF}



$$\triangle ABC \sim \triangle DEF$$

7. \overline{FE} , \overline{EH} , and \overline{GF}



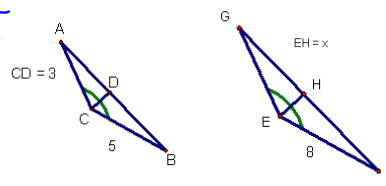
If 2 polygons are similar, then the ratio of any 2 corresponding lengths in the polygons is equal to the scale factor.

e.g. altitudes, medians, angle bisectors

$\triangle ABC \sim \triangle GFE$ What is EH?

$$\frac{9}{8} = \frac{3}{x}$$

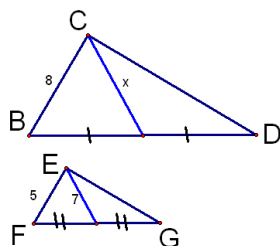
$$x = 4.8$$



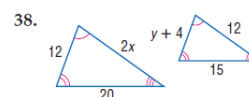
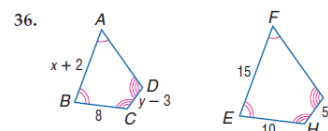
$\triangle BCD \sim \triangle FEG$

What is the scale factor?

What is the value for x ?



Each pair of polygons is similar. Find x and y . Round to the nearest hundredth if necessary.



HW
p376-377
#s 3, 6-12, 19, 20, 23-26